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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,992	12/11/2001	Takeaki Shimanouchi	2500.66054	3379

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EXAMINER	
TAMAI, KARL I	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/014,992	SHIMANOUCHI, TAKEAKI
	Examiner	Art Unit
	Tamai I.E. Karl	2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-4,6,11-13,15 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-4,6,11-13,15 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 2-4, 6, 11, 12, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyck et al.(Dyck)(US 6393913), Werner (US 6133059), Park et al. (Park)(US 5747690), and Hashimoto (US 6543285). Dyck shows and actuator having opposing 26 within a framed moving electrodes 28. Dyck shows the stationary and electrodes are parallel and fixedly mounted on a silicon nitride base plane. Dyck inherently teaches a square column(prism) at the end of the wall which is integrally formed with the wall, which is between the datum planes formed by the outer surfaces of the electrode walls. Dyck teaches every aspect of the invention except the solid insulating piece between the electrodes, the material of the insulating piece is silicon nitride, the columns being between the datum planes, and the spacing between the datum planes being three times the wall thickness of the moving electrode. Werner teaches an insulating member ZR between the adjacent capacitance electrodes being the same as the insulating base. Werner teaches an electrostatic actuator having stationary electrodes with columns couple to the end of the wall (see FE 12, in figure 6). Park teaches electrostatic electrodes with columns being wider and between the walls of the electrodes. Park suggests the columns are square and more that three times the

width of the electrode wall (See figure 4). Hashimoto teaches the electrodes on the mover and stator being result effective variables, and having the same dimenion "w" to provide an effective driving force. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Dyck with the insulation between the stationary electrodes to position and provide stability to the electrodes as shown by Werner, and with the insulating material being silicon nitride because Dyck teaches it is the preferred material for the base, and with the column and walls of Park to secure the electrodes to the substrate when surrounded by the moving member, and because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (see *In re Aller*, 105 USPQ 233), with the electrodes having the same dimension to provide an effective driving force as taught by Hashimoto.

3. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dyck et al.(Dyck)(US 6393913), Werner (US 6133059), Park et al. (Park)(US 5747690), and Hashimoto (US 6543285). Dyck, Werner, Park, and Hashimoto teach every aspect of the invention except the moving electrode having a thickness W and the stable electrode columns have area of $9W^2$ at the basement plane. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Dyck, Werner, Park, and Hashimoto with the moving electrode having a thickness W and the stable electrode columns have area of $9W^2$ at the basement plane to optimized the power supply to the electrodes, and because it has been held that

where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (see *In re Aller*, 105 USPQ 233).

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dyck et al.(Dyck)(US 6393913), Werner (US 6133059), Park et al. (Park)(US 5747690), and Hashimoto, in further view of Fujii et al.(Fujii)(US 6227050). Dyck, Werner, Park, and Hashimoto teach every aspect of the invention except the insulating film and conductor pieces connecting the column to a wiring pattern. Fujii teaches a conductive wiring pattern 122 and an insulating film with the connector piece to the electrodes being surrounded by film (see figure 30). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Dyck, Werner, Park, and Hashimoto with the insulating film and conductor pieces connecting the column to a wiring pattern of Fujii to utilize know micromachine assembly techniques.

Response to Arguments

5. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new grounds of rejection.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (571) 273 - 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai
PRIMARY PATENT EXAMINER
September 8, 2005

KARL TAMAI
PRIMARY EXAMINER